

REMARKS

This communication is responsive to the Official Action mailed March 29, 2010, setting forth a Restriction Requirement in the above-identified application. A petition for a one-month extension of the term for response to said Official Action, to and including May 29, 2010, is transmitted herewith.

Claims 1, 3-4, 6-12, 14-17, 19, 21-30 are pending in the application, with claims 2, 5, 13, 18, and 20 having been canceled and claims 27-30 having been added by the present amendment. Claims 1, 3, 4, 6, 11, 17, 19, and 21-23 have been amended herein. No new matter is presented by these amendments.

In the Official Action, the Examiner required restriction to one of the following inventions under 35 U.S.C. §121 and §372:

- I. Claims 1-19, drawn to a reactor for treating a substrate; or
- II. Claims 20-26, drawn to a method of treating substrates.

Based on the Examiner's grouping of claims, it is believed that the Examiner has overlooked the PCT Article 19 claim amendments incorporated in the present U.S. national stage application on filing. In this regard, the Examiner's attention is directed to the fact that claims 1-20 of the amended claims are apparatus claims (not claims 1-19 as identified by the Examiner), and claims 21-26 are method claims (not claims 20-26 as identified by the Examiner). It is noted that the claim amendments presented herein are based on the claims as amended under Article 19.

In response to the Restriction Requirement, Applicants hereby provisionally elect with traverse the invention of Group II. Group II corresponds to pending claims 21-30. Applicants reserve the right to file a divisional application corresponding to the non-elected claims.

In the Official Action, the Examiner contended that unity of invention is lacking because U.S. Patent No. 6,197,121 to Gurary et al. ("Gurary") teaches every common element between

the identified groups of claims. The Examiner's position is respectfully traversed, however, because Gurary at least fails to teach or suggest directing mixed gases into a reactor with a substantially uniform velocity, while varying the concentration (or mass flow rate) of the component reactant gas at different positions within the reactor. As shown below, this feature is included in all of the pending independent claims (*i.e.*, claims 1, 11, 17, 19, and 21), and thus all of the claims possess unity of invention.

For example, currently amended independent claim 1 recites, *inter alia*, "wherein the one or more sources of reactant gas and the one or more sources of carrier gas are configured such that the streams directed by said inlets have different concentrations of said reactant gas and different mass flow rates of said reactant gas but have substantially the same velocity." Similarly, independent claim 11 recites, *inter alia*, "said gas stream generator being configured such that the gas stream has substantially uniform velocity but different concentrations of a reactant gas at different radial distances from said axis." Independent claim 17 recites, *inter alia*, "said second combined gas stream having a second combined velocity substantially equal to said first combined velocity . . . said second treatment area unequal in area to said first treatment area . . . said reactant gas sources and said carrier gas sources being configured so that a ratio of said first reactant gas flow rate to said first treatment area is substantially equal to the ratio of said second reactant gas flow rate to said second treatment area." Claim 19 recites, *inter alia*, "gas supply means for introducing a reactant gas and a carrier gas . . . so that said gases flow . . . in one or more streams having substantially uniform velocity . . . wherein said gas supply means is operative to mix at least some of said reactant gas with said carrier gas so that gas flowing toward radially outward portions of said treatment surface has a higher concentration of said reactant gas than gas flowing toward radially inward portions of said treatment surface." Independent claim 21 recites, *inter alia*, "each of said gas

streams flowing . . . with a substantially uniform velocity . . . mixing a reactant gas with a carrier gas to form each of the plurality of streams, the gases being mixed such that the gas streams flowing toward radially outward portions of said one or more surfaces have a higher concentration of said reactant gas than the gas streams flowing toward radially inward portions of said one or more surfaces."

In the Official Action, the Examiner contended that *Gurary* teaches "[i]ntroducing reactant and carrier gases into the chamber such that each treatment surface of the substrate receives the same amount of reactant gas per unit time per unit area." In support of this position, the Examiner pointed to column 5, lines 13-25 of *Gurary*, which discusses the components of the gas separator. The Examiner also pointed to column 9, lines 24-41 of *Gurary*, which discusses maintaining gases from various connectors separate from each other prior to injection into the chamber, and which states that, after injection, "it is necessary to provide a highly uniform dispersion of gases over the entire surface of the wafer, and, at the same time, to prevent premature reaction." Neither of these portions of *Gurary*, however, amount to a teaching or suggestion of injecting gas into a chamber with a uniform velocity while varying the concentration of the component reactant gas. Since this feature is included in all of the claims, as discussed above, the claims do possess unity of invention, and the Examiner's restriction requirement should be withdrawn.

In the event any fee is due in connection with the present response, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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